

WHAT IS CLAIMED IS:

1. A method for producing beer comprising filtering beer through a porous membrane until such time that said porous membrane is in need of cleaning, contacting said porous membrane with an enzyme selected from the group consisting of cellulases, amylases, and combinations thereof in the absence of a protease or a glucanase to clean said porous membrane, and then reusing said porous membrane to continue filtering beer.
2. The method of claim 1, wherein said porous membrane is not contacted with an enzyme other than said cellulase or said amylase.
3. The method of claim 1 or 2, wherein said porous membrane is contacted with said cellulase.
4. A method for producing beer comprising filtering beer through a porous membrane until such time that said porous membrane is in need of cleaning, contacting said porous membrane with a cellulase having a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 0.1 to clean said porous membrane, and then reusing said porous membrane to continue filtering beer.
5. The method of claim 3 or 4, wherein said porous membrane is contacted with said cellulase and is not contacted with any other enzyme.
6. The method of any of claims 1-3 or 5, wherein said cellulase has a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 0.1.
7. The method of claim 6, wherein said cellulase has a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 0.3.
8. The method of claim 7, wherein said cellulase has a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 0.4.

- 6A² 9. The method of claim 8, wherein said cellulase has a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 0.5.
10. The method of claim 9, wherein said cellulase
5 has a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 1.
11. The method of claim 10, wherein said cellulase has a crystalline:soluble cellulose activity ratio at 60 minutes of at least about 1.2.
- 10 12. The method of any of claims 1-11, wherein said cellulase is derived from *Trichoderma*.
13. The method of claim 12, wherein said *Trichoderma* is *Trichoderma reesei* or *Trichoderma longibrachiatum*.
- 15 14. The method of any of claims 1-11, wherein said cellulase is derived from *Thermomonospora*.
15. The method of claim 14, wherein said *Thermomonospora* is *Thermomonospora fusca*.
16. The method of any of claims 1-3 and 6-15,
20 wherein said porous membrane is contacted with said amylase.
17. The method of claim 16, wherein said amylase is selected from the group consisting of α -amylase, β -amylase, and the combination thereof.
- 25 18. The method of any of claims 1-17, wherein said porous membrane is additionally contacted with an aqueous base prior to being reused.
19. The method of claim 18, wherein said porous membrane is contacted with said aqueous base prior to
30 being contacted with said enzyme.
- 6A³ 20. The method of claim 18 or 19, wherein said aqueous base is an aqueous solution of NaOH and/or KOH.
21. The method of any of claims 18-20, wherein said base is present in a concentration of 0.1-1 N in said
35 aqueous base.

bA³ 22. The method of any of claims 18-21, wherein said porous membrane is contacted with said aqueous base at a temperature of 40-90 °C.

23. The method of any of claims 1-22, wherein said
5 porous membrane is contacted with said cellulase at a
temperature of 40-50 °C and a pH of 4.5-5.5.

24. The method of any of claims 1-3 and 6-23, wherein said porous membrane is contacted with α -amylase at a temperature of 60-75 °C and a pH of 4.6-5.8.

10 25. The method of any of claims 1-3 and 6-23,
 wherein said porous membrane is contacted with β -amylase
 at a temperature of 40-60 °C and a pH of 4.6-5.8.

26. The method of any of claims 1-25, wherein said porous membrane is cleaned until the zeta potential of said porous membrane ceases to change.

27. The method of any of claims 1-26, wherein said time that said porous membrane is in need of cleaning is determined by the pressure drop across said porous membrane.

20 28. The method of any of claims 1-26, wherein said time that said porous membrane is in need of cleaning is determined by the streaming or zeta potential of said porous membrane.

29. A method for producing beer comprising
25 filtering beer through a porous membrane that
progressively clogs during filtration, monitoring the
streaming or zeta potential of said porous membrane as a
measure of the extent of clogging of said porous
membrane, halting filtration of the beer through said
30 porous membrane before said porous membrane becomes fully
clogged as determined by the streaming or zeta potential
of said porous membrane, cleaning said porous membrane,
and then reusing said porous membrane to continue
filtering beer.

35 30. The method of claim 28 or 29, wherein said
filtration is halted when the streaming or zeta potential

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of said porous membrane is reduced to 20% of its original value for the unused porous membrane.

31. The method of any of claims 1-30, wherein said porous membrane is a polyamide porous membrane.

5 32. The method of claim 31, wherein said filtration is halted when the zeta potential of said porous membrane exceeds +5 mV as measured at pH 4.2.

33. The method of any of claims 1-32, wherein said filtering beer is cold-filtering beer.

10 34. A filtration unit for filtering beer comprising a feeder line for the filtration-bound beer, a porous membrane, a run-off line for the filtered beer, and means for monitoring the streaming potential and/or zeta potential of said porous membrane through which beer
15 flows.

35. The filtration unit of claim 34, further comprising a bypass porous membrane through which beer flows, wherein said monitoring means for monitoring the streaming potential and/or zeta potential does so with
20 respect to said bypass porous membrane.

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